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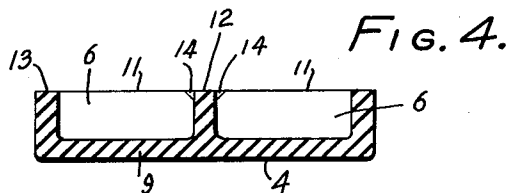
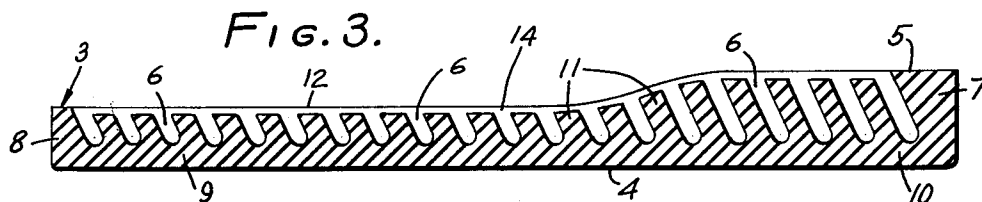
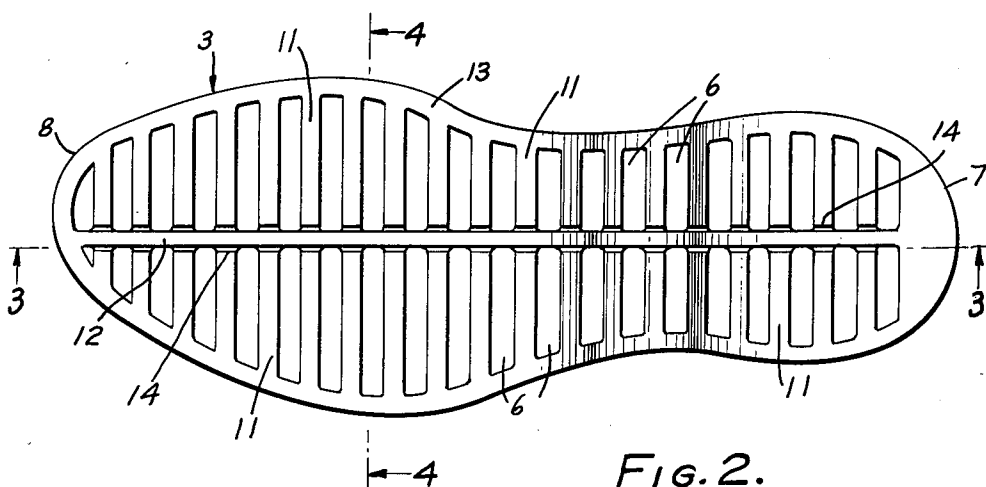
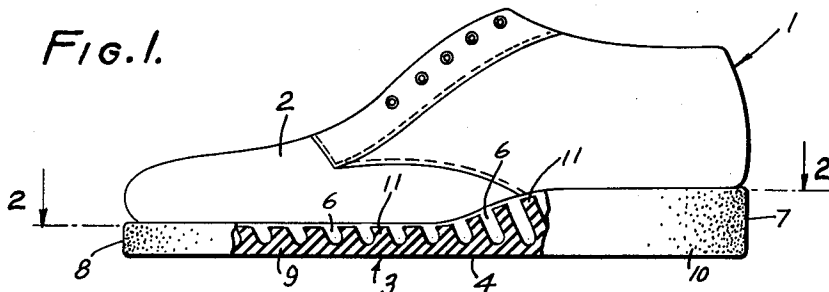
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SLANT CELL SHOE SOLE

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FIG. 1.



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SLANT CELL SHOE SOLE

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2 Claims. (Cl. 36—28)

The present invention relates to a slant cell shoe sole construction.

At the present time there is upon the commercial market so-called shoe soles the outer or ground engaging surface of which is provided with so-called transverse corrugations which are at an angle to what may be termed the normal outsole surface for the purpose of moving the foot forwardly during walking. However, such a construction must be so manufactured and compounded that the corrugations will resist wear and as a consequence the cushioning effect is very minute and becomes less effective as the shoe is worn. Such a construction is a compromise between wear resistance and cushion effect and experience has shown that after a short use of such a sole the cushion effect is gone.

An object of my invention is to provide a construction incorporating a slant cell in the shoe sole wherein the resiliency of the cellular structure may at all times be maintained and which cellular structure of the sole does not engage the ground surface when walking. Thus the particular sole of the present invention may be so compounded and manufactured as to maintain the cushioning effect of the sole during its normal and useful life.

Other objects of the invention include a slant cellular shoe sole which does not detract from the normal outward appearance of the sole and a shoe which may be used for golf, tennis, or even as a dress shoe, and which affords walking ease to the wearer of the shoe during the life of the shoe.

Other objects include a slant cellular shoe sole which is inexpensive in cost of manufacture, efficient in actual use and generally superior to so-called cellular shoe soles now known to the inventor.

With the above mentioned and other objects in view, the invention consists in the novel and useful provision, construction, association and relative arrangement of parts, members and features, all as shown in one embodiment in the accompanying drawing, described generally, and more particularly pointed out in the claims.

In the drawing:

FIGURE 1 is a fragmentary, partially sectional side elevation of a shoe, the sole of which incorporates the invention;

FIGURE 2 is an enlarged plan view of the shoe sole taken on the line 2—2 of FIGURE 1;

FIGURE 3 is a cross-sectional view of the shoe sole taken on the line 3—3 of FIGURE 2; and,

FIGURE 4 is a transverse sectional view of the shoe sole taken on the line 4—4 of FIGURE 2.

Referring now to the drawing, I have shown for illustrative purposes only, a shoe 1 which includes an upper 2 and a sole 3 secured to the upper 2. The present sole is compounded from rubber or other material which is resilient or yields to pressure exerted thereon such as pressure that would be exerted by the foot when the shoe is worn by an individual and the sole engages the ground.

The tread surface 4 of the sole 3 is, in the present instance, plane surfaced, as shown in FIGURES 3 and 4. The surface may be contoured so that it is not flat as shown, this being at the discretion of the manufacturer of the shoe. Furthermore, the wear portion may have at-

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tached thereto a supplemental sole which may be leather or other material having various yielding components under compression. This construction is not shown as it is a mere addition to the construction which I am describing. What may be termed the upper surface 5 of the sole 3 is recessed by a series of transverse cells designated generally as 6, the cells being slanted forwardly from the heel portion 7 to the toe portion 8. In the construction shown, the cells 6 are open at their tops to the upper surface 5, have their rounded bottoms at a level well above the bottom or tread surface 4 of the sole to provide for adequate wear, and all cells have parallel walls which are substantially at the same angularity to the upper surface 5 and preferably at an acute angle thereto. The heel portion 10 of the sole is of greater thickness than that portion of the sole which normally engages the ball of the foot. The cells, which extend transversely of the sole, as shown in FIGURE 2, are substantially parallel and separated by transverse parallel, flat-topped ribs designated generally as 11. The ribs have parallel front and rear walls which form the corresponding walls of the cells. The sole is provided with a single longitudinal rib 12 which divides the cells 6 on either side of the longitudinal rib 12 into approximately equal portions and likewise divides the transverse ribs 11. The cells terminate adjacent the edge of the sole to provide what may be termed a marginal flange 13 which circumscribes the shoe cells and determines the outline of the sole. Various refinements may be made by the shoe manufacturer such as providing a supplemental insole for the insole portion of the sole so as to cover the cells 6.

The operation, uses and advantages of my invention of sole construction are as follows.

The bottom or tread surface of the sole is alternately stretched and contracted as body weight is transferred through foot pressure to cause forward collapse of the cells 6 from heel to toe. When heel pressure is applied, the forward portion of the tread surface of the sole stretches and as pressure progresses to the forward portion of the sole the heel pressure is released and the bottom surface contracts causing the rear or heel portion to move forwardly. Thus the effect is to advance the upper part of the sole unit and the shoe forwardly ahead of the step position and gives the wearer an extra forward motion on each step without extra effort on the part of the wearer.

It is obvious that the present construction of my slant cell shoe sole does not deteriorate from use as the tread surface is smooth and is not ribbed with the consequence that the outsole portion may be made of any thickness and may wear consequent upon use of the shoe without in any manner effecting the upper portion containing the cells 6. Hence the cells will at all times be yieldable to perform efficiently the function of the sole. Obviously the cells 6 may be multiplied to any number so as to be in close proximity as indicated in FIGURE 2 or 3, or the cells may vary as to spacing. In any event it is evident that given a composition for the sole, the rib separation of the cells may vary so that the ribs are relatively thin with relation to the dimension of the cells or enlarged as to transverse width. That portion of the sole containing the cells, by being relatively thick has its wear resistance increased without in any manner effecting the action of the cellular structure at the upper surface of the sole. The longitudinal rib 12 which extends from the heel to the toe of the sole dividing the transverse ribs and cells into roughly equal portions aids in maintaining the stability of the sole, it being observed that the transverse ribs 11 are relieved at the zone which joins the transverse ribs with the longitudinal rib 12, as indicated at 14, in order

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that the transverse ribs may have greater freedom of movement than they would in absence of the notches 14.

I claim:

1. A resilient shoe sole formed with a series of flat-topped transverse ribs in substantially parallel relationship and extending from the toe of the sole to the heel thereof, with cells formed between said transverse ribs, said cells having parallel walls slanting forwardly at an acute angle to and terminating short of the ground engaging surface of the sole.

2. The construction of claim 1, and a longitudinal central rib and extending from the toe to the heel portion of the sole, and dividing the cells and the transverse ribs into approximately equal portions on both sides of the central rib, each rib adjacent the longitudinal rib being

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recessed at its top in order to permit a greater forward movement of the rib.

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